

Pacific Power Del Norte District Transmission Audit Report

October 6-8, 2020

I. Introduction

PacifiCorp is an electric power company that has two business units: Rocky Mountain Power and Pacific Power. Pacific Power is an electric utility with service territory throughout Oregon, southeastern Washington, and northern California including Del Norte County (Crescent City Area).

Peak demand in the Crescent City Area is approximately 60 MW. To serve the Crescent City Area, Pacific Power uses two 115 kV high voltage transmission lines, Line 38 and 44, to deliver power from the Grants Pass area in southwestern Oregon to Del Norte Substation.

Del Norte Substation steps down the 115 kV voltage to 69 kV. There are three 69 kV sub-transmission lines sourced from Del Norte Substation. Line 86 and Line 87 form a loop. Line 87, besides being part of the loop, also extends south for approximately 22 miles. Line 85, a radial line sourced from Line 86, heads north for approximately 4.5 miles to the border between California and Oregon.

Please see Figure 1 for the transmission system in the Crescent City Area.

Figure 1: Crescent City Area Transmission System



	115 kV PacifiCorp	PacifiCorp Substation			<p>PACIFIC POWER A member of PacifiCorp</p> <p>GIS SUPPORT SERVICES Solution Group pacific@pacifiCorp.com</p> <p>Data is projected in UTM Zone 12, NAD83, meters.</p> <p>PacifiCorp makes no representations or warranties as to the accuracy, completeness or fitness for a particular purpose with respect to the information contained in this map. PacifiCorp shall have no responsibility or liability to any person or entity resulting from the use of any information furnished in this map.</p>
	115 kV Coos-Curry	Coos-Curry Substation			
	69 kV PacifiCorp				
	State Boundary				
	County				3 - 1

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II. Records Review

ESRB staff reviewed the following records:

1. Crescent City area transmission study 2017-2021,
2. Map of Crescent City transmission lines,
3. Crescent City transmission structures summary,
4. Pacific Power’s standard operating procedures regarding electric transmission preventive maintenance policies, requirements, and procedures:
 - a. 001 – Maintenance Intervals for Apparatus, Relays, Line Patrol/Inspections and Communications Equipment,
 - b. 298 – State of California – Wood Pole Test and Treatment for Transmission and Distribution (T&D) Lines,
 - c. 159 – State of California – Underground Visual Assurance Inspections,
 - d. 297 – State of California – Detailed Inspections for T&D Lines,
 - e. 342 – State of California – Patrol Inspections of T&D Lines,
 - f. 012 – Insulators,
 - g. 045 – Woodpecker Damage Repair and Replacement for Wood Poles
 - h. 069 – Clearance Table for T&D Line Inspectors
 - i. 192 – State of California – Condition Management Plan, Correction Time Periods, and Compliance Requirements.
5. General Order (GO) 165 Transmission Inspection record from January 2011 to April 2020,
6. T&D Vegetation Management Program Standard Operating Procedures,
7. Records of vegetation management work performed within and adjacent to the transmission line rights-of-way,
8. Customer Reliability Communications Flow Charts,
9. Pole loading calculation samples for the following four transmission poles on transmission line 668038: 1/52, 5/57, 1/59, and 3/64.
10. Intrusive test samples for the following four transmission poles

Table 1: Intrusive Test Samples	
35015_668086/00_356904101	10/007
35015_668086/00_238503071	13/009
35253_668085/00_472152814	14/003
35253_668085/00_283161024	12/004

11. TD 003 Poles-Setting and Foundation Information
12. List of identified conditions from January 1, 2010 to April 30, 2020,
13. Three outgoing third-party safety hazard notifications.
14. Three longest weather-related sustained transmission outages and three longest non-weather related sustained transmission outages occurred from January 2015 to April 2020.
15. Three samples of Pacific Power’s self-audit for quality control purposes.
16. List of qualification records of the Pacific Power employees and contractors conducted patrols, inspections, and vegetation management.
17. Pacific Power’s justification for not conducting climbing inspections.
18. Pacific Power’s third-party notifications.
19. Crescent City Legacy Conditions List for conditions identified prior to 2010.

III. Record Review Violations

ESRB staff reviewed Pacific Power’s records and identified the following violations:

1. GO 95, Rule 18.B.(1) states in part:

“(a) The maximum time periods for corrective actions associated with potential violation of GO 95 or a Safety Hazard are based on the following priority levels:

(i) Level 1 -- An immediate risk of high potential impact to safety or reliability:

- Take corrective action immediately, either by fully repairing or by temporarily repairing and reclassifying to a lower priority.*

(ii) Level 2 -- Any other risk of at least moderate potential impact to safety or reliability:

- Take corrective action within specified time period (either by fully repair or by temporarily repairing and reclassifying to Level 3 priority). Time period for corrective action to be determined at the time of identification by a qualified company representative, but not to exceed:*

(1) six months for potential violations that create a fire risk located in Tier 3 of the High Fire Threat District,

(2) 12 months for potential violations that create a fire risk located in Tier 2 of the High Fire Threat District,

(3) 12 months for potential violations that compromise worker safety, and

(4) 36 months for all other Level 2 potential violations.

(iii) Level 3 -- Any risk of low potential impact to safety or reliability:

- *Take corrective action within 60 months subject to the exception specified below.*”

Pacific Power’s Asset Management Policy No. 192, Section 4.3 Condition Priority Levels states:

“Pacific Power’s FPI system has a predetermined list of condition codes for use by inspectors to efficiently capture, categorize, and communicate observations and inform the scope of potential corrective actions. The Condition Codes are assigned Priority Levels, as follows:

4.3.1 Priority A

Conditions where there’s a risk of high potential impact to safety or reliability which includes, as a subset, Imminent Threats. “A” Priorities align with GO95 Level 1 priority levels (GO95 18-B-1-a). “A” priorities meet the criteria in Pacific Power’s Policy 298 or Procedure 069. Imminent Threats are items that pose a significant present threat to human life or property and corrective action shall be taken immediately, either by fully repairing or by temporarily repairing.

4.3.2 Priority B

Conditions where there’s a risk of at least a moderate potential impact to safety or reliability are given priority B. “B” priorities meet the criteria in Pacific Power’s Policy 298 or Procedure 069. “B” priorities align with GO95 Level 2 priority levels (GO95 18B-1-a).

4.3.3 Priority C

Conditions where there’s a risk of low potential impact to safety or reliability are given priority C. “C” priorities meet the criteria in Pacific Power’s Procedure 069. “C” priorities align with GO95 Level 3 priority levels (GO95 18-B-1-a). “C” priorities are only assigned to locations in California.

4.3.4 Priority D

Conditions where there’s no corrective action required but it’s desirable to record informational issues for engineering and planning purposes are given priority “D”. Common examples include “locked gate” and “missing intersection identification sign.”

4.3.5 Priority G

Conditions where there’s an exemption from corrective action due to the age of the equipment. Grandfathered priorities are considered conforming, they are recorded for future inspection references and audit purposes.”

ESRB staff reviewed Pacific Power’s response 1.18 and its attachment and found four work orders that were completed late based on GO 95 Rule 18 requirements. Please see Table 2 for detailed information for the four work orders:

Table 2: Late Work Orders				
Work Order No.	1	2	3*	4*
INSPECTION DATE	3/30/2017	4/29/2019	1/27/2020	1/27/2020
CONDITION CODE	POLEDERP	BIRDDMG	POLEREPL	POLEREPL
CONDITION CODE DESCRIPTION	DECAY REJECT REPLACE	WOODPECKER HOLES OR BIRD NEST, LARGE IN PRIMARY	DAMAGE REJECT REPLACE	DAMAGE REJECT REPLACE
PRIORITY	A	A	A	A
CLEARED DATE	10/4/2018	10/14/2019	8/6/2020	8/6/2020
CONDITION STATUS	CORRECTED	CORRECTED	CORRECTED	CORRECTED
PLANT LOCALITY NAME	`668044/00	`668086/00	`668038/00	`668038/00
POLE	`8/072	`5/001	`1/055	`1/055
MEMBER POSITION			L	R
WILDFIRE_RISK_AREA	CA-TIER-2	CA-NON-TIER	CA-TIER-2	CA-TIER-2
FIRE THREAT CONDITION [YES/NO]	YES	NO	YES	YES
CA GO95 REQUIREMENT [YES/NO]	YES	YES	YES	YES
INTERNAL PLANNED COMPLETION DATE	6/30/2017	5/31/2019	4/27/2020	4/27/2020
ON SCHEDULE [YES/NO]	NO	NO	NO	NO
GO95 COMPLIANCE REQUIRED DATE	6/30/2017	5/31/2019	4/27/2020	4/27/2020
BEHIND SCHEDULE PER GO95 COMPLIANCE [YES/NO]	YES	YES	YES	YES

*While Pacific Power's initial response showed the two work orders, created based on an inspection on January 27, 2020, were OPEN, which means Pacific Power has not corrected the deficiencies yet, in its response to ESRB's Data Request Set 2, Pacific Power updated that these two deficiencies were corrected on August 6, 2020.

After the inspection date, PacifiCorp should have corrected the four Priority A work orders immediately as its Asset Management Policy No. 192, Section 4.3 Condition Priority Levels states in part:

“Imminent Threats are items that pose a significant present threat to human life or property and corrective action shall be taken immediately, either by fully repairing or by temporarily repairing.”

For example, the inspection date of work order No. 1 in Table 2 above was March 30, 2017, and its required compliance due date was June 30, 2017. However, Pacific Power did not take necessary corrective actions for this work order until October 4, 2018, which was approximately one year and three months after the required end date to remedy the Priority A condition.

Table 2 shows that Pacific Power did not take timely corrective actions for these four Priority A work orders as required by GO 95 Rule 18.B.(1) requirements.

IV. Field Inspection Findings

ESRB staff inspected 65 transmission facilities in the Crescent City Area that are listed in Attachment 1 and found the following violations:

1. GO 95, Rule 31.1, Design, Construction and Maintenance states in part:

“Electrical supply and communications systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.”

- 1.1. Transmission pole No. 668044/003/075, located just outside of the Del Norte Substation, has a misshaped ground molding. This misshaped molding reduced clearance between the 115 kV transmission conductors and the ground. This is a safety hazard and could develop into a grounding fault.
- 1.2. Pacific Power replaced sub-transmission pole No. 668087/004/005 but left the hole of the old pole in the ground which is a safety hazard to the public.
- 1.3. Sub-transmission pole No. 668087/014/01 has rusted switch pins. This condition compromised the safety, reliability, and switching flexibility for Line 87.

2. GO 95, Rule 51.6: Marking and Guarding, High Voltage Marking states in part:

“Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words “HIGH VOLTAGE”, or pair of signs showing the words “HIGH” and “VOLTAGE”, not more than six (6) inches in height with letters not less than 3 inches in height. Such signs shall be of weather and corrosion-resisting material, solid or with letters cut out therefrom and clearly legible.”

GO 95, Rule 18.B.(1) states in part:

“(a) The maximum time periods for corrective actions associated with potential violation of GO 95 or a Safety Hazard are based on the following priority levels:

- (i) Level 1 -- An immediate risk of high potential impact to safety or reliability:*

- *Take corrective action immediately, either by fully repairing or by temporarily repairing and reclassifying to a lower priority.*

(ii) Level 2 -- Any other risk of at least moderate potential impact to safety or reliability:

- *Take corrective action within specified time period (either by fully repair or by temporarily repairing and reclassifying to Level 3 priority). Time period for corrective action to be determined at the time of identification by a qualified company representative, but not to exceed:*

(1) six months for potential violations that create a fire risk located in Tier 3 of the High Fire Threat District,

(2) 12 months for potential violations that create a fire risk located in Tier 2 of the High Fire Threat District,

(3) 12 months for potential violations that compromise worker safety, and

(4) 36 months for all other Level 2 potential violations.

(iii) Level 3 -- Any risk of low potential impact to safety or reliability:

- *Take corrective action within 60 months subject to the exception specified below.”*

The Commission Decision 18-05-042, Ordering Paragraph 4 states:

“The amendments to General Order 95 (GO 95) adopted by today’s Decision shall go into effect on June 30, 2019. Any safety hazards and potential GO 95 violations identified by a utility prior to June 30, 2019, shall be corrected in accordance with the requirements in effect on the date the safety hazards and potential violations are first identified.”

Appendix J
Exceptions from the Maximum Time Period
for Corrective Actions for Level 3 Conditions in Rule 18

<p>Description: Opportunity maintenance.</p> <p>Repair Interval: Take action (reinspect, reevaluate, or repair) as appropriate. Exception conditions will be corrected the next time a crew is at the structure to perform tasks at the same or higher work level on the pole, i.e., the public, communications, or electric level.</p> <p>Additional Exceptions: Additional exceptions may be added pursuant to Rule 18, Section B(1)(a)(iii). For the current list of exceptions, including those granted to specific entities, please see the Commission website.</p>		
Line Element	Electric	Communications
Conductor	<p>Missing / illegible high voltage marking in a remote location (inaccessible by vehicle)</p> <p><i>Rationale: There is a low risk of the public coming into contact with a remote line such that the high voltage sign might provide a precaution for the public. The risk of potential harm to the worker associated with correction outweighs the risk of harm from not correcting. Therefore, it is reasonable to address the correction as opportunity maintenance.</i></p>	<p>Communication carrier identification tag missing / illegible</p> <p><i>Rationale: There is negligible risk to safety or reliability associated with a missing communications carrier tag, and the risk of potential harm to the worker associated with correction outweighs that negligible risk. Therefore, it is reasonable to address the correction as opportunity maintenance. See NESC 214A5 (Corrections) (“(a) Lines and equipment with recorded conditions or defects that would reasonably be expected to endanger human life or property shall be promptly corrected, disconnected, or isolated. (b) Other conditions or defects shall be designated for correction.”).</i></p>

During the field inspections, ESRB staff found 37 transmission poles either have no High Voltage (HV) signs or have illegible HV signs. According to Pacific Power, HV signs are considered as priority Level 3 deficiencies. Pacific Power stated that according to Commission Decision 18-05-042, Ordering Paragraph 4, priority Level 3 deficiencies that were identified prior to June 30, 2019, can be considered as opportunity corrections and are grandfathered under the old version of GO 95, Rule 18.B.(1). Pacific Power stated that it would take corrective actions for these missing or illegible HV signs when there are other higher level corrective actions necessary for these poles. ESRB staff agrees with Pacific Power staff’s interpretation and considers 21 of the 37 identified deficiencies as grandfathered deficiencies based on the Commission Decision 18-05-042 and the old version of GO 95, Rule 18.B.(1).

Table 3 below shows the 16 deficiencies that ESRB staff identified in the field:

Table 3: Poles Missing or Have Illegible HV Signs

Count	Structure Location	Structure Type	Missing or Illegible HV Signs	Potential Violation Identified During the Audit
1	668044/002/052 L	Steel	Missing	Yes
2	668044/002/052 R	Steel	Missing	Yes
3	668038/005/045	Steel	Missing	Yes
4	668038/001/055	Wood	Missing	Yes
5	668038/007/067	Wood	Illegible	Yes
6	668044/007/074	Wood	Illegible	Yes
7	668038/005/067	Wood	Illegible	Yes
8	668044/005/73	Wood	Illegible	Yes
9	668038/004/067	Wood	Missing	Yes
10	668038/012/067	Wood	Illegible	Yes
11	668038/004/68	Wood	Illegible	Yes
12	668044/003/075	Wood	Missing	Yes
13	668085/005/005	Wood	Illegible	Yes
14	668087/012/008	Wood	Illegible	Yes
15	668087/010/008	Wood	Illegible	Yes
16	668087/004/005	Wood	Illegible	Yes

However, since the above 16 deficiencies were identified during the audit, they are subject to the new version of GO 95, Rule 18.B.(1). Regarding the applicability of the new Rule 18.B.(1) to these newly identified priority Level 3 deficiencies, Pacific Power believes that they qualify for exceptions under GO 95, Appendix J. However, ESRB determined that Appendix J exceptions only apply to conductors, including transmission lines and poles, that are not accessible by vehicles. Since all the 16 deficiencies can be accessed by vehicles, they are not exempted under Appendix J and are subject to GO 95, Rule 51.6 and Rule 18.B.(1). Pacific Power must correct the deficiencies within 60 months after their identification.

V. Observations:

During the field inspection, ESRB staff also observed some vegetation such as bushes and trees surrounding transmission poles in the following four locations:

1. Transmission mono pole ID 668038/009/067 & 668044/009/073,

2. Transmission mono pole ID 668038/005/067 & 668044/005/73,
3. Transmission pole ID 668044/003/074, and
4. Transmission pole ID 668038/8X1/068.

ESRB staff recommends that Pacific Power clean up the vegetation at and around the transmission poles to mitigate fire risks.

Attachment 1: Field Inspection List, Crescent City Area Transmission Facilities

Loc #	Structure Location	Structure Type	Issues Found
1	668038/001/050	Wood	None
2	668044/001X/056 L&R	Wood	None
3	668044/001/052	Wood	None
4	668044/002/052 L&R	Steel	Missing High Voltage (HV) signs
5	668038/005/045	Steel	Missing HV signs on one side.
6	668038/004/054 L&R	Wood	None
7	668044/004/060	Wood	Missing HV signs on one of the poles.
8	668038/001/055	Wood	Missing HV signs on one side of the pole.
9	668038/002/061 L&R	Wood	None
10	668038/009/067 & 668044/009/073	Wood	Bushes and trees surround the poles.
11	668038/008/067 & 668044/008/073	Wood	None
12	668038/007/067 & 668044/007/073	Wood	Illegible HV signs.
13	668038/006/067 & 668044/006/073	Wood	None
14	668038/005/067 & 668044/005/73	Wood	Illegible HV signs. Bushes and trees surround the poles.
15	668038/004/067 & 668044/004/073	Wood	Illegible HV sign on pole 668038/004/067, Missing HV sign on pole 668044/004/73.
16	668038/010/067	Wood	None
17	668044/010/073	Wood	None
18	668038/011/67	Wood	None
19	668038/012/067	Wood	Illegible HV signs.
20	668038/001/068	Wood	Missing HV signs.
21	668038/002/68	Wood	Missing HV signs.
22	668038/003/68	Wood	Illegible HV signs.
23	668038/004/68	Wood	Illegible HV signs.
24	668044/003/074	Wood	Bushes and trees surround the pole.
25	668038/008/068	Wood	Bushes and trees surround the pole.
26	668044/002/074	Steel	None
27	668044/3X1/074	Wood	None
28	668044/3X1/074	Wood	None
29	668038/8X1/068	Wood	Bushes and trees surround the pole.
30	668044/003/075	Wood	Missing HV sign. Loose ground molding.
31	668038/04X/069	Wood	None
32	668044/03X/075	Wood	None
33	668044/004/075	Wood	Missing HV signs.
34	668044/005/075	Wood	Missing HV signs.
35	668038/005/069	Wood	None
36	668038/004/069	Wood	None

37	668038/003/069	Wood	None
38	668038/002/069	Wood	Missing HV signs.
39	668044/001/075	Wood	None
40	668038/04X/069	Wood	None
41	668085/005/005	Wood	Illegible HV signs.
42	668085/009/001	Wood	None
43	668085/008/001	Wood	Missing HV signs.
44	668086/006/001	Wood	Missing HV signs.
45	668086/012/002	Wood	None
46	668086/012/006	Wood	None
47	668086/013/006	Wood	Missing HV signs.
48	668086/013/007	Wood	Illegible HV signs.
49	668086/004/008	Wood	Missing HV signs.
50	668086/005/008	Wood	Missing HV signs.
51	668087/003/022 L&R	Wood	None
52	668087/002/018	Wood	None
53	668087/005/014	Wood	Missing HV signs.
54	668087/004/014	Wood	Missing HV signs.
55	668087/012/009	Wood	Moss on insulators.
56	668087/013/009	Wood	Illegible HV signs.
57	668087/012/008	Wood	Illegible HV signs.
58	668087/010/008	Wood	Illegible HV signs.
59	668087/002/006	Wood	Insulator deflected.
60	668087/004/005	Wood	Pole hole left after the old pole was removed. Illegible HV signs. Insulator deflected.
61	668086/014/011	Wood	Rusted switch pins. Illegible HV signs.
62	668086/013/011	Wood	Illegible HV signs.
63	668086/012/011	Wood	Illegible HV signs.
64	668086/011/011	Wood	Illegible HV signs.
65	668086/010/011	Wood	Missing HV signs.